LUTRON®

Application Note #231

Revision C

September 2011

Using a VPN Connection to Remotely Access Lutron® Systems

Overview

This application note describes a method of configuring remote access to a Lutron® system using an Internet connection to a Virtual Private Network (VPN) router. This application note covers configuring a router to use Point to Point Tunneling Protocol (PPTP) for VPN access. Microsoft Windows XP®, Windows Vista®, and Windows® 7 have native client support for this type of VPN.

PPTP VPN adds a layer of security before the homeowner's system is connected to the Internet. It should be noted that any time remote access is provided for a homeowner's site there is a risk of having the network and equipment compromised by unauthorized access.

Key Terms

VPN	Virtual Private Network
VPN Router	A piece of hardware or software that provides a virtual connection through a public network (such as the internet) to a private network.
VPN Client	Hardware or software that connects to a VPN router over a public network connection and provides an additional network connection to the private network which the VPN router is connected to.
ISP	Internet Service Provider
Static IP	An IP address assigned to a network computer or device which does not change at a given time interval or during the network connection process.
Dynamic IP	An IP address assigned to a network computer or device which changes at a predetermined time interval or during the network connection process.
URL	Universal Resource Locator: a readable name that represents a network IP address (i.e. google.com or myname.dyndns.org). A URL is often referred to as a host name or web address.
DNS Server	A server on a public or private network that translates URL's into network IP addresses.
Dynamic DNS	A service that maps static or dynamic IP address to a URL.

Before You Begin…

1. In order to connect to a VPN router the VPN client must be able to find the VPN router. This is done with one of the following two options:

   a. A static IP address from the client's ISP. This address must be known to complete the setup and will be provided by the ISP.

   b. An account with a dynamic DNS service. This application note uses DynDNS.org. This will allow the use of a host name (URL) instead of a static IP.

2. Acquire a VPN router and its accompanying manual. This application note covers the use of the D-Link® DIR-130 (wired) and the D-Link® DIR-330 (wired/wireless) routers. Please note that all screenshots within this application note may differ in appearance to the screens rendered on your computer. **This application note also assumes the router is in its "default" or "out-of-box" state**. If this is not the case, there is a risk of running an untested VPN

Preliminary

router environment incompatible with Lutron® systems. See "Appendix C – Technical Specifications" subsection "Default Factory Settings" of the router's product manual for instructions on performing a reset.

3. Ensure each HomeWorks® Illumination™/QS Processor or the RadioRA® 2 Main Repeater is using a static IP address and you have those addresses readily available. Static IP addresses are required to ensure devices using the VPN remotely can locate the system.

4. Confirm the PC you will be using to configure the VPN Router is set to obtain an IP address dynamically. Please reference the following Microsoft Windows® articles for support:

    a. Windows XP®: http://support.microsoft.com/kb/305553

    b. Windows Vista®: http://windows.microsoft.com/en-US/windows-vista/Change-TCP-IP-settings

    c. Windows® 7: http://windows.microsoft.com/en-US/windows7/Change-TCP-IP-settings

Preliminary

Configuring the Router

1. **Setup a private network with the VPN router**: Follow the manufacturer's instructions included with the router to connect computers and other network devices to the router.

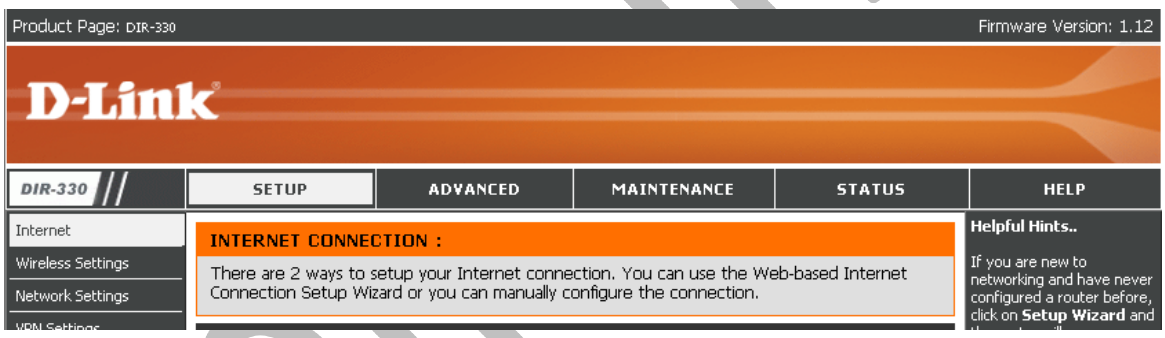
    a. The manufacturer's instructions can be found on the CD included with the VPN router. Insert the CD into your PC and select "View Manual". Follow the instructions under "Section 1: Product Overview" and "Section 2: Installation" of the manual.

    b. Access the router's internal configuration pages. To access these pages, open a web-browser and enter the IP address of the D-Link VPN router (192.168.0.1).

    c. Enter **admin** as the User name. Leave the **password** field blank.

2. **Verify the VPN router has the latest firmware**: Once logged into the router's configuration pages, ensure that the Firmware Version is version 1.12 or higher (D-Link DIR-330) or 1.23 or higher (D-Link DIR-130). If it is lower, upgrade the firmware by following the manufacturer's instructions before proceeding. The current firmware version information can be found in the top right-hand corner of any router configuration page.

Figure 1


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Internet
Wireless Settings
Network Settings
INTERNET CONNECTION :
There are 2 ways to setup your Internet connection. You can use the Web-based Internet Connection Setup Wizard or you can manually configure the connection.
Helpful Hints..
If you are new to networking and have never configured a router before, click on Setup Wizard and

3. **Configure the VPN router for remote access**: Changes need to be made to the router's default configuration in order to setup the router for remote access. Each change is listed below.

Note: Make sure to press the **Save Settings** button at the top of every configuration screen when indicated in the following steps. Otherwise the changes that have been made will not be saved. After pressing the **Save Settings** button, it may take a few moments until the **Continue** button is enabled to click.

a. Configure the VPN router's local network settings**:**

Note: The default LAN IP address is set to 192.168.0.1. If a VPN client's local network uses IP addresses in the same range as the VPN router's network (192.168.0.XXX), an address conflict may occur and the connection between the VPN client and the VPN router will not operate properly. To reduce the possibility of address conflicts, Lutron recommends changing the default (VPN) LAN IP address to something less likely used as default addresses on other local networks. In this example, we will use 192.168.100.1 as the (VPN) LAN IP address.

i. Select the **Setup** tab from the top menu, and then select **Network Settings** from the left menu.

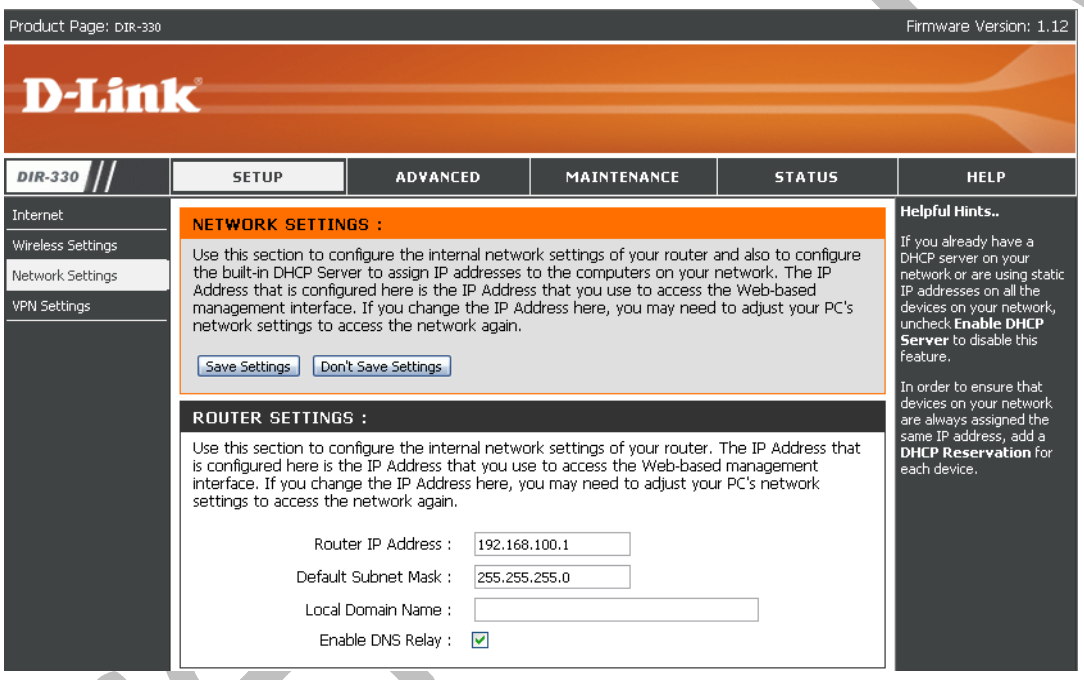
ii. Modify the network address as shown in Figure 2.

Preliminary

1. Set the **Router IP Address** to **192.168.100.1**
2. Ensure the **Default Subnet Mask** is **255.255.255.0**
3. Ensure the **Local Domain Name** is blank.
4. Ensure the **Enable DNS Relay** is **checked**.
5. Press the **Save Settings** button at the top.

iii. Restart the computer that is connected to the router in order for it to acquire its new IP address. Then re-open a web browser and enter the new IP address of the VPN router (192.168.100.1).

Figure 2


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Internet
Wireless Settings
Network Settings
VPN Settings
NETWORK SETTINGS :
Use this section to configure the internal network settings of your router and also to configure the built-in DHCP Server to assign IP addresses to the computers on your network. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.
Save Settings
Don't Save Settings
ROUTER SETTINGS :
Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.
Router IP Address :
192.168.100.1
Default Subnet Mask :
255.255.255.0
Local Domain Name :
Enable DNS Relay :
Helpful Hints..
If you already have a DHCP server on your network or are using static IP addresses on all the devices on your network, uncheck Enable DHCP Server to disable this feature.
In order to ensure that devices on your network are always assigned the same IP address, add a DHCP Reservation for each device.

b. Configure the VPN router's Internet connection settings:

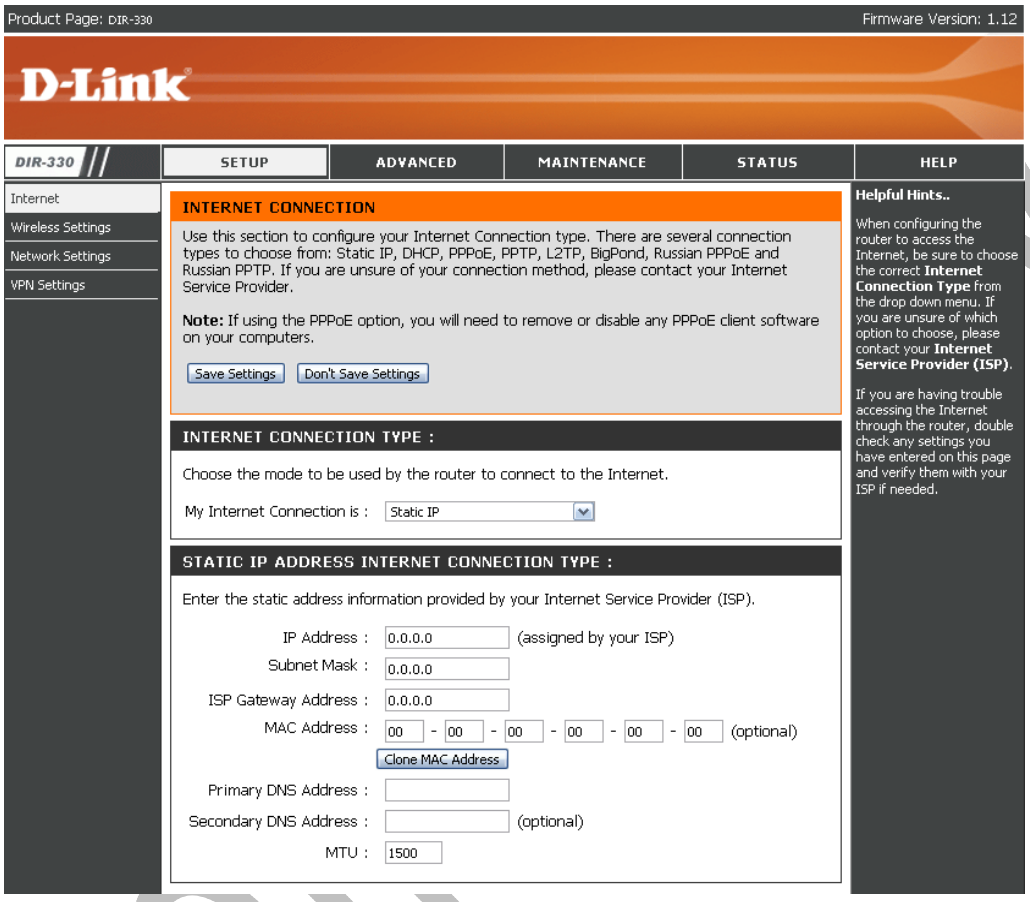
i. *If the ISP provides a static IP address* the VPN router must be configured with a static Internet IP address:

1. Access the VPN Router's internal configuration pages at its address: **192.168.100.1**
2. Select the **Setup** tab.
3. Click **Internet** from the left menu.
4. Under **Manual Internet Connection Options**, select the **Manual Configure** button.
5. Change **My Internet Connection is** to **Static IP**.
6. Fill in the **IP Address, Subnet Mask, ISP Default Gateway Address, MAC Address, and DNS Servers** your ISP has provided.

Preliminary

7. Press the **Save Settings** button at the top.

Figure 3


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Internet
Wireless Settings
Network Settings
VPN Settings
INTERNET CONNECTION
Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, BigPond, Russian PPPoE and Russian PPTP. If you are unsure of your connection method, please contact your Internet Service Provider.
Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.
Save Settings
Don't Save Settings
INTERNET CONNECTION TYPE :
Choose the mode to be used by the router to connect to the Internet.
My Internet Connection is :
Static IP
STATIC IP ADDRESS INTERNET CONNECTION TYPE :
Enter the static address information provided by your Internet Service Provider (ISP).
IP Address :
0.0.0.0
(assigned by your ISP)
Subnet Mask :
0.0.0.0
ISP Gateway Address :
0.0.0.0
MAC Address :
00 - 00 - 00 - 00 - 00 - 00
(optional)
Clone MAC Address
Primary DNS Address :
Secondary DNS Address :
(optional)
MTU :
1500
Helpful Hints..
When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP).
If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.

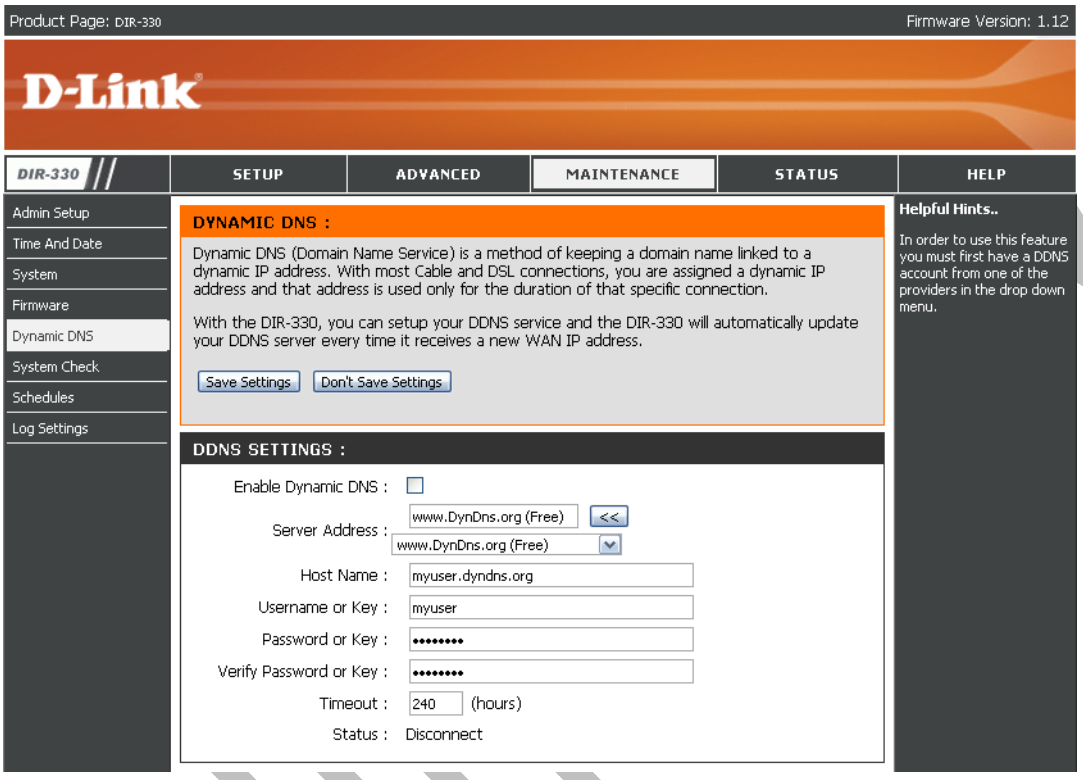
ii. *If the ISP provides a Dynamic IP address* a dynamic DNS service must be used. Dynamic DNS services can be used with static IP addresses as well to utilize a custom web address instead of a static IP address when directing the VPN client device to the VPN router over the Internet. This can be done using a dynamic DNS hosting service such as DynDNS.org. This application note uses a DynDNS.org free account. To configure a dynamic DNS service:

1. Access the VPN Router's internal configuration pages at its address: **192.168.100.1**
2. Select the **Maintenance** tab.
3. Click **Dynamic DNS** from the left menu.
4. Check **Enable Dynamic DNS** to enable.
5. Select **www.DynDns.org (Free)** and click the **<<** button to populate **Server Address**.
6. Provide the correct **Host Name, User Name, and Password,** for the DynDNS.org account being used.

7. Leave **Timeout** at **240**.

8. Press the **Save Settings** button at the top.

Figure 4


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Admin Setup
Time And Date
System
Firmware
Dynamic DNS
System Check
Schedules
Log Settings
DYNAMIC DNS :
Dynamic DNS (Domain Name Service) is a method of keeping a domain name linked to a dynamic IP address. With most Cable and DSL connections, you are assigned a dynamic IP address and that address is used only for the duration of that specific connection.
With the DIR-330, you can setup your DDNS service and the DIR-330 will automatically update your DDNS server every time it receives a new WAN IP address.
Save Settings
Don't Save Settings
DDNS SETTINGS :
Enable Dynamic DNS :
Server Address :
www.DynDns.org (Free)
<<
www.DynDns.org (Free)
Host Name :
myuser.dyndns.org
Username or Key :
myuser
Password or Key :
Verify Password or Key :
Timeout :
240
(hours)
Status :
Disconnect
Helpful Hints..
In order to use this feature you must first have a DDNS account from one of the providers in the drop down menu.

c. Configure User Groups

i. Select the **Advanced** tab.

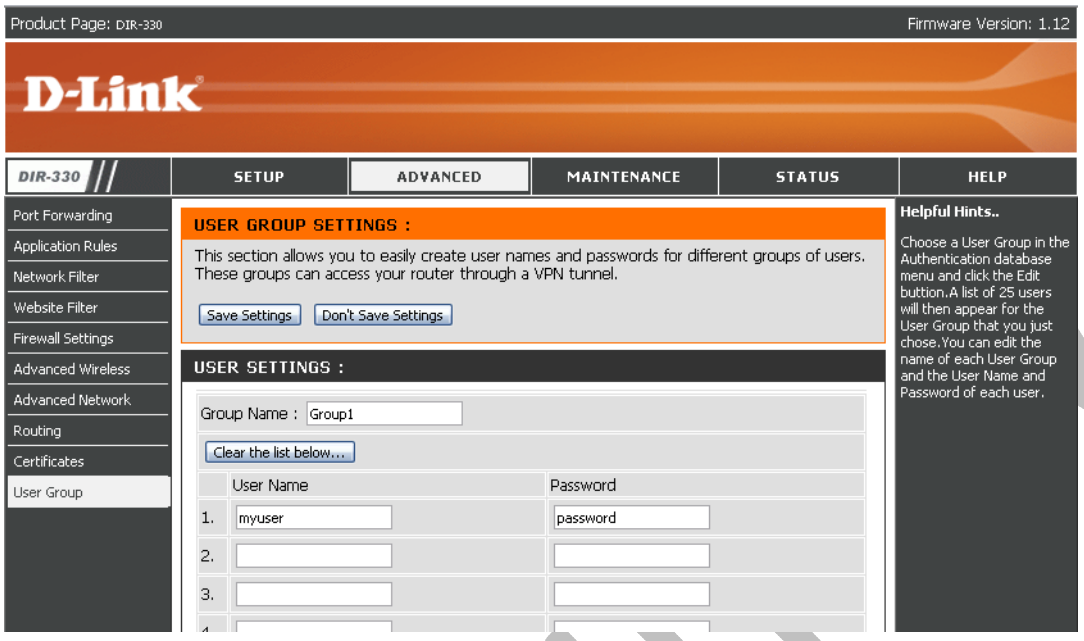
ii. Click **User Group** from the left menu.

iii. Under **User Settings**, replace the first **User Name** (“admin”) with a VPN user. Also, assign a **Password** for that user. (If “admin” does not appear already in the username list, just begin adding users in position number “1”). Repeat this step (iii) for any additional users of the VPN.

iv. Press the **Save Settings** button at the top.

Preliminary

Figure 5


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Port Forwarding
Application Rules
Network Filter
Website Filter
Firewall Settings
Advanced Wireless
Advanced Network
Routing
Certificates
User Group
USER GROUP SETTINGS :
This section allows you to easily create user names and passwords for different groups of users. These groups can access your router through a VPN tunnel.
Save Settings
Don't Save Settings
USER SETTINGS :
Group Name : Group1
Clear the list below...
User Name
Password
1. myuser password
2.
3.
Helpful Hints..
Choose a User Group in the Authentication database menu and click the Edit buttion.A list of 25 users will then appear for the User Group that you just chose.You can edit the name of each User Group and the User Name and Password of each user.

NOTE: The VPN router supports up to 25 simultaneous connections. Each **User Name** may be used to open multiple connections before the simultaneous-connection limit is reached.

d. Configure VPN Access:

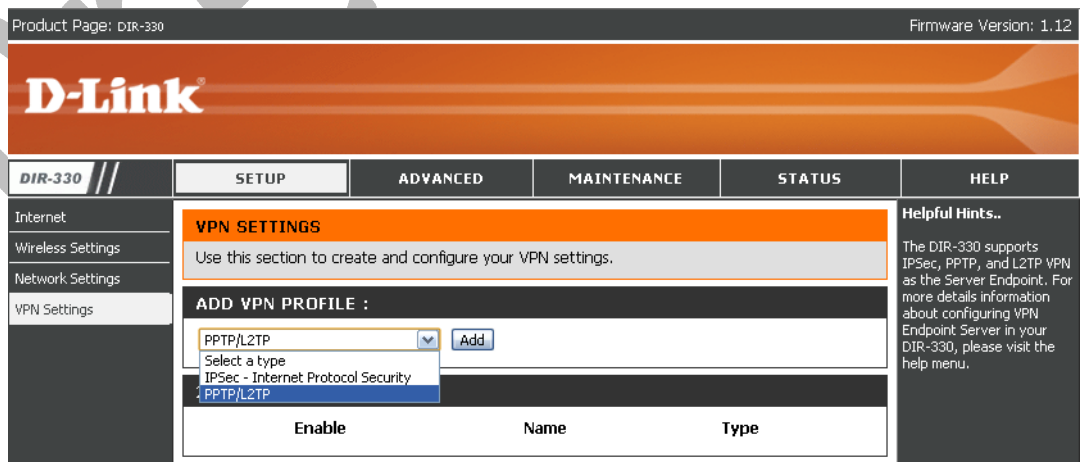
i. Select the **Setup** tab.

ii. Click **VPN Settings** from the left menu.

iii. If prompted, press the **Manual VPN Setup** button.

iv. Under **Add VPN Profile**, select **PPTP/L2TP** from the dropdown and click **Add**.

Figure 6

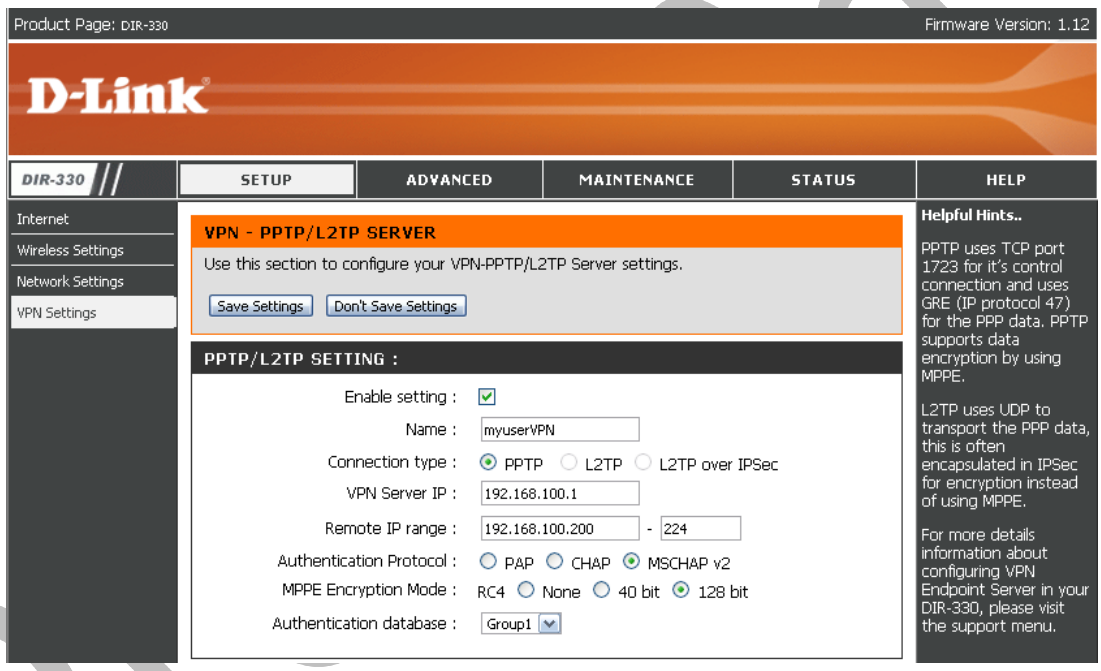


1. Check the box labeled **Enable setting**.

Preliminary

2. Provide a name for the VPN connection appropriate to the location.
3. Ensure the radio button for **PPTP** is selected.
4. Enter the router's LAN IP Address (**192.168.100.1**) into the **VPN Server IP** field.
5. Assign a **Remote IP range** of **192.168.100.200** in the first field and **225** in the second field (**192.168.100.200-225**).
6. Ensure **MSCHAP v2** is selected for **Authentication Protocol**.
7. Ensure **128 bit** is selected for **MPPE Encryption Mode.**
8. Ensure **Group 1** is selected for **Authentication database**.
9. Press the **Save Settings** button at the top.

Figure 7


Product Page: DIR-330
Firmware Version: 1.12
D-Link
DIR-330
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
Internet
Wireless Settings
Network Settings
VPN Settings
VPN - PPTP/L2TP SERVER
Use this section to configure your VPN-PPTP/L2TP Server settings.
Save Settings
Don't Save Settings
PPTP/L2TP SETTING :
Enable setting :
Name : myuserVPN
Connection type : PPTP L2TP L2TP over IPSec
VPN Server IP : 192.168.100.1
Remote IP range : 192.168.100.200 - 224
Authentication Protocol : PAP CHAP MSCHAP v2
MPPE Encryption Mode : RC4 None 40 bit 128 bit
Authentication database : Group1
Helpful Hints..
PPTP uses TCP port 1723 for it's control connection and uses GRE (IP protocol 47) for the PPP data. PPTP supports data encryption by using MPPE.
L2TP uses UDP to transport the PPP data, this is often encapsulated in IPSec for encryption instead of using MPPE.
For more details information about configuring VPN Endpoint Server in your DIR-330, please visit the support menu.

4. **Address Lutron® System with Static IP** – The HomeWorks® QS Processor(s), HomeWorks® Illumination™ Processor(s), or RadioRA® 2 Main Repeater must have a static IP to ensure functionality of the Lutron® Home Control applications on iOS®/Android® devices using the VPN from a remote location. If static IP addressing was already assigned to system devices connected to an old router, it may be required to re-address the assigned devices to connect with the new VPN router's subnet (192.168.100.XXX).

    a. *For HomeWorks® QS Systems:*

        i. Connect the PC to the HWQS system and open the project file in the HomeWorks® QS application

        ii. Select the **activate** tab.

            1. Within the **activate processors** task view, *deactivate* each processor on the system

2. Click the **Project Setup** link below the menu bar.
    a. Under the **Network Settings** tab, for every Processor:
        i. Uncheck the **DHCP** option.
        ii. Assign a unique IP address within the **192.168.100.151 – 192.168.100.199** range to the Processor in the IP Address field (Example: Processor 1: 192.168.100.151, Processor 2: 192.168.100.152, etc.).
    b. Set the **Gateway Address** to **192.168.100.1** (or other VPN Router address set up in step 3.a.ii.1.
    c. Set the **Subnet Mask** to **255.255.255.0**.
    d. Press the **Done** button.
3. Press the **Refresh** button to re-identify processors on the system.
4. **Deactivate** and **Reactivate** each processor.

b. *For HomeWorks® Illumination™ Systems:*

i. Connect the PC to the HWI system and open the project file in the HomeWorks® Illumination™ application.

1. In the Illumination™ software, open the Terminal screen.
2. In the File menu of the Terminal screen, select the TCP/IP Setup Wizard.
3. On the Overview screen, press the Next button.
4. On the Connecting your Ethernet cables screen, press the Next button.
5. On the Processors discovered screen, select the network adapter that matches the connection to the processor.
6. In the lower half of the same window, select the processor from the list of discovered processors.
7. Press the Next button.
8. Ensure that the checkbox for DHCP Enabled is unchecked.
9. Assign a static IP address to the processor within the 192.168.100.151-192.168.100.199 range in the IP address field.
10. Ensure that the subnet mask is 255.255.255.0.
11. Ensure that the gateway address matches the IP address of the router.
12. Click Next.

Preliminary

13. Ensure that the port numbers are correct for the site. Most sites will use the default ports, which are 80 for Web access, 21 for FTP, and 23 for Telnet.
14. Click Next.
15. The Setup Wizard should connect to the processor and apply any necessary configuration changes.
16. A message window should appear indicating that the TCP/IP configuration completed successfully.
17. Press the OK button on the message window.
18. Press the Close button on the Terminal screen.

c. *For RadioRA® 2 Systems:*

i. Connect the PC to the RadioRA® 2 system and open the project file in the RadioRA® 2 PC application.

1. Press the **Find Main Repeater** button.
2. Under the **DHCP Enabled** column, select **False** from the drop-down list.
3. Assign a static IP address to the Main Repeater within the **192.168.100.151 – 192.168.100.199** range in the **IP Address** field.
4. Press the **Save Changes** button.

Preliminary

Overview

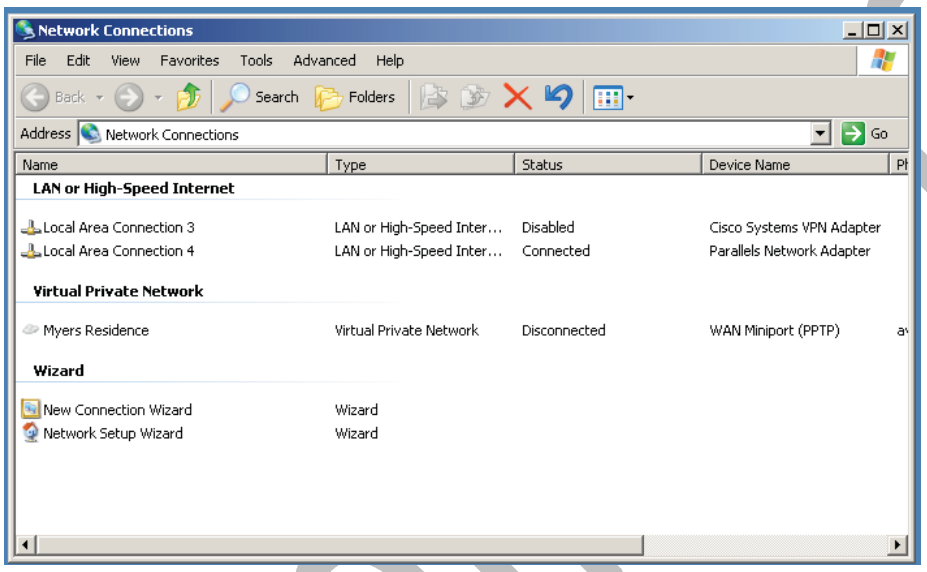
After the VPN router is successfully configured, you will need to create a Virtual Private Network (VPN) connection within Microsoft Windows®. This connection can then be enabled anytime you need to connect to the client's network.

Instructions for Windows XP®

1. On the Windows® desktop, right click the **My Network Places** icon and select **Properties**. (Alternatively, open the **Control Panel** and open **Network Connections**.)

2. In the **Network Connections** window, click **File**, and then click **New Connection**.

Figure 8

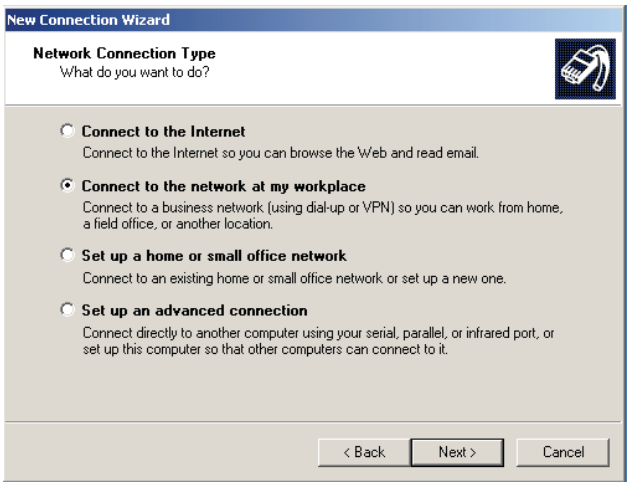

Network Connections
File Edit View Favorites Tools Advanced Help
Back Search Folders
Address Network Connections
Go
Name Type Status Device Name
LAN or High-Speed Internet
Local Area Connection 3 LAN or High-Speed Inter... Disabled Cisco Systems VPN Adapter
Local Area Connection 4 LAN or High-Speed Inter... Connected Parallels Network Adapter
Virtual Private Network
Myers Residence Virtual Private Network Disconnected WAN Miniport (PPTP)
Wizard
New Connection Wizard Wizard
Network Setup Wizard Wizard

3. In the **New Connection Wizard**, advance to the **Network Connection Type** screen by clicking **Next >**.

4. Select **Connect to the network at my workplace** and click **Next >**.

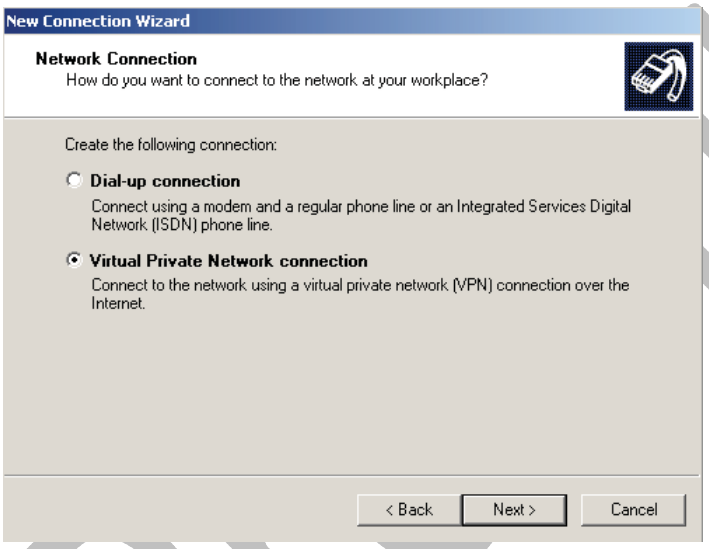
Preliminary

Figure 9


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

5. On the **Network Connection** screen, select **Virtual Private Network connection** and then click **Next >**.

Figure 10

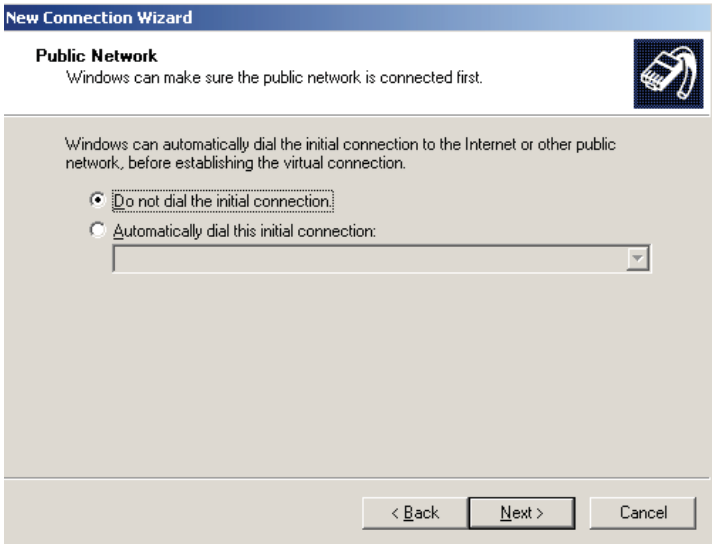

New Connection Wizard
Network Connection
How do you want to connect to the network at your workplace?
Create the following connection:
Dial-up connection
Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line.
Virtual Private Network connection
Connect to the network using a virtual private network (VPN) connection over the Internet.
< Back
Next >
Cancel

6. On the **Connection Name** screen type in your client's name in the **Company Name** text field, then click **Next >**.

7. If the **Public Network** screen appears (some network configurations skip this screen) select the option **Do not dial the initial connection** then click **Next >**.

Preliminary

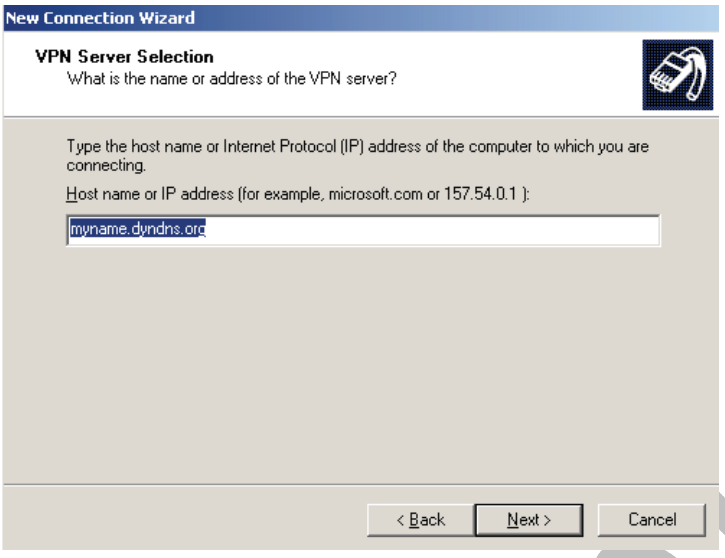
Figure 11


New Connection Wizard
Public Network
Windows can make sure the public network is connected first.
Windows can automatically dial the initial connection to the Internet or other public network, before establishing the virtual connection.
Do not dial the initial connection.
Automatically dial this initial connection:
< Back
Next >
Cancel

Preliminary

8. On the **VPN Server Selection** screen type in the static IP address of your client's network or the DynDNS host name then click **Next >**.

Figure 12


New Connection Wizard
VPN Server Selection
What is the name or address of the VPN server?
Type the host name or Internet Protocol (IP) address of the computer to which you are connecting.
Host name or IP address (for example, microsoft.com or 157.54.0.1):
myname.dyndns.org
< Back
Next >
Cancel

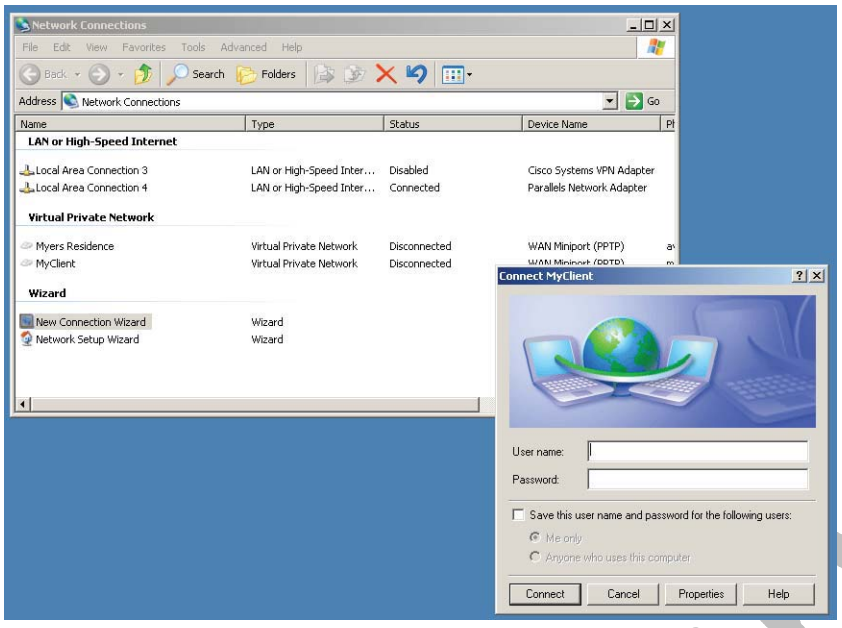
9. If the **Connection Availability** screen appears (some PC configurations skip this screen) select the desired availability then click **Next >**.

10. Click **Finish** to complete the setup.

11. After finishing the **Connection Wizard**, you will be prompted to enter the **User name** and **Password**. This is the same username and password that you created in step 3.c.iii above under **Configuring the Router**. You will also notice that in the **Network Connections** box a new connection has been created. Use this connection next time you need to connect to this VPN router.

Preliminary

Figure 13


Network Connections
File Edit View Favorites Tools Advanced Help
Back Search Folders
Address Network Connections
Go
Name Type Status Device Name
LAN or High-Speed Internet
Local Area Connection 3 LAN or High-Speed Inter... Disabled Cisco Systems VPN Adapter
Local Area Connection 4 LAN or High-Speed Inter... Connected Parallels Network Adapter
Virtual Private Network
Myers Residence Virtual Private Network Disconnected WAN Miniport (PPTP)
MyClient Virtual Private Network Disconnected
Wizard
New Connection Wizard Wizard
Network Setup Wizard Wizard
Connect MyClient
User name:
Password:
Save this user name and password for the following users:
Me only
Anyone who uses this computer
Connect
Cancel
Properties
Help

Preliminary

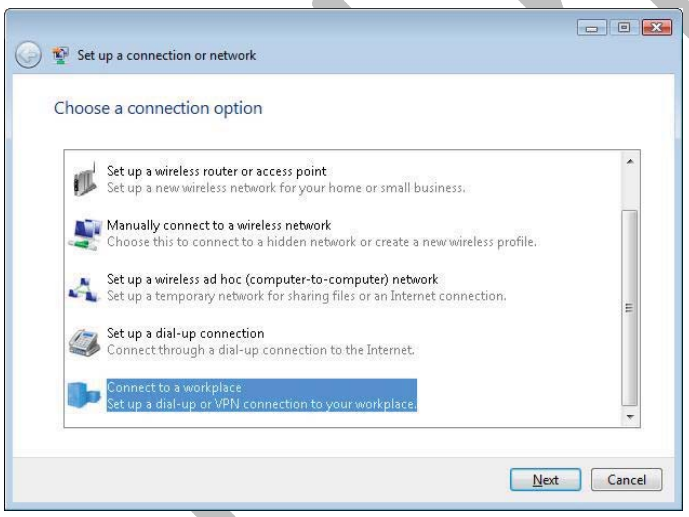
Instructions for Windows Vista® and Windows® 7

1. Open the **Control Panel** and click on **Network and Internet** and then click on **Network and Sharing Center**.
2. In the **Network and Sharing Center** click **Set up a connection or network**.

Figure 14

3. On the **Choose a connection option** screen click **Connect to a workplace** and click **Next**.

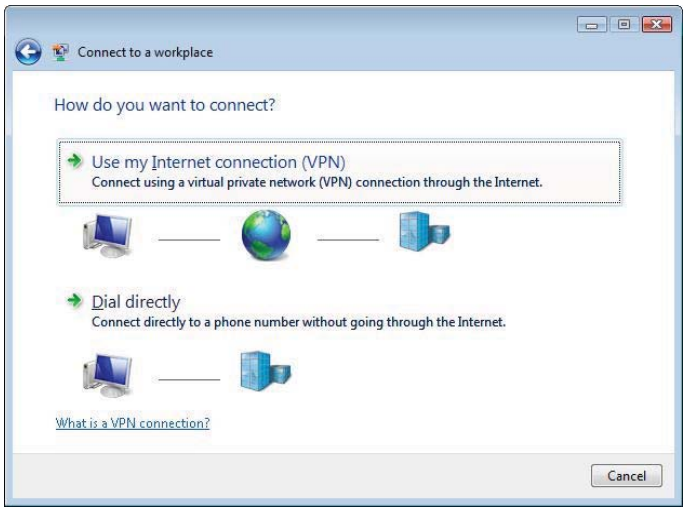
Figure 15


Set up a connection or network
Choose a connection option
Set up a wireless router or access point
Set up a new wireless network for your home or small business.
Manually connect to a wireless network
Choose this to connect to a hidden network or create a new wireless profile.
Set up a wireless ad hoc (computer-to-computer) network
Set up a temporary network for sharing files or an Internet connection.
Set up a dial-up connection
Connect through a dial-up connection to the Internet.
Connect to a workplace
Set up a dial-up or VPN connection to your workplace.
Next
Cancel

4. On the **How do you want to connect?** screen, select **Use Internet Connection (VPN)**.

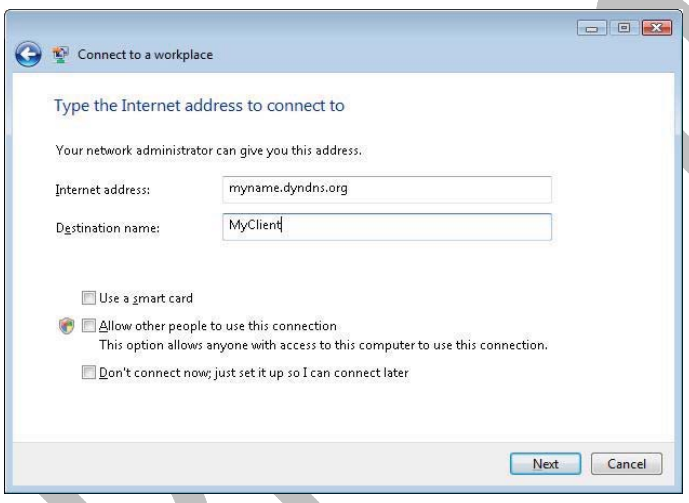
Preliminary

Figure 16


Connect to a workplace
How do you want to connect?
Use my Internet connection (VPN)
Connect using a virtual private network (VPN) connection through the Internet.
Dial directly
Connect directly to a phone number without going through the Internet.
What is a VPN connection?
Cancel

5. On the **Type the Internet address to connect to** screen, type in the static IP address of your client's network or the DynDNS host name into the **Internet Address** box. Type the name of the client into the **Destination** box. Ensure the checkboxes are unchecked and click **Next**.

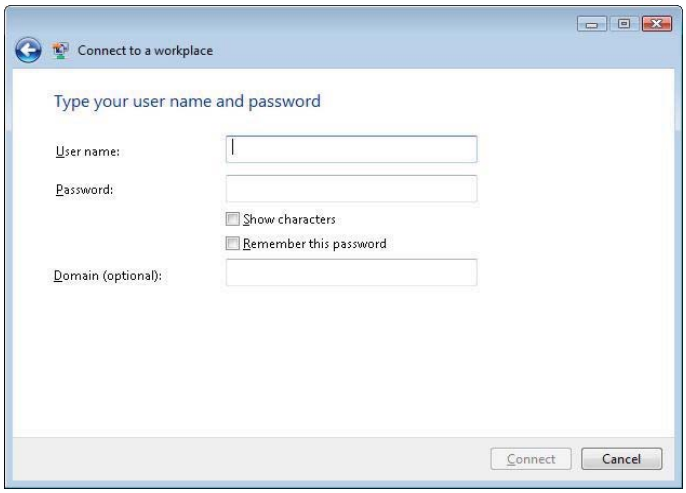
Figure 17


Connect to a workplace
Type the Internet address to connect to
Your network administrator can give you this address.
Internet address:
myname.dyndns.org
Destination name:
MyClient
Use a smart card
Allow other people to use this connection
This option allows anyone with access to this computer to use this connection.
Don't connect now; just set it up so I can connect later
Next
Cancel

6. On the next screen, type in the **User name** and **Password** that you created in the router to log into the VPN. Click **Connect** to complete the setup.

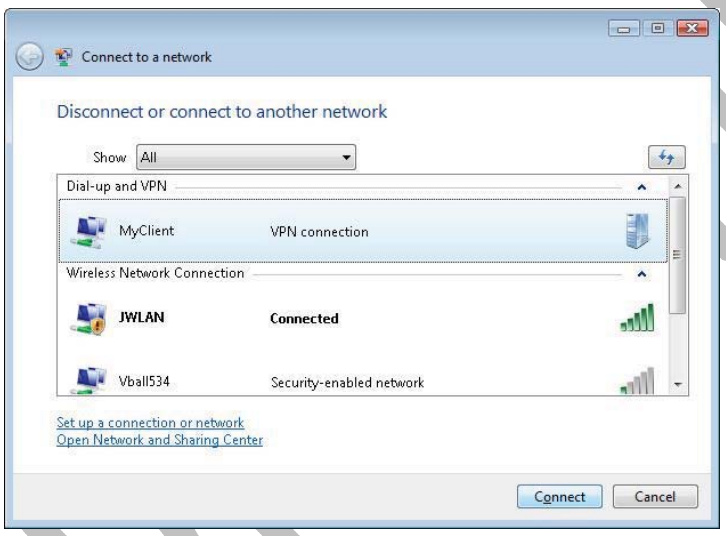
Preliminary

Figure 18



7. A new connection will have been created for the VPN. In the **Network and Sharing Center**, click **Connect to a network**, select the client's VPN and then click **Connect** to establish the VPN connection to the client's network.

Figure 19



Preliminary

Instructions for Apple® iPhone®/iPod Touch® Mobile Devices

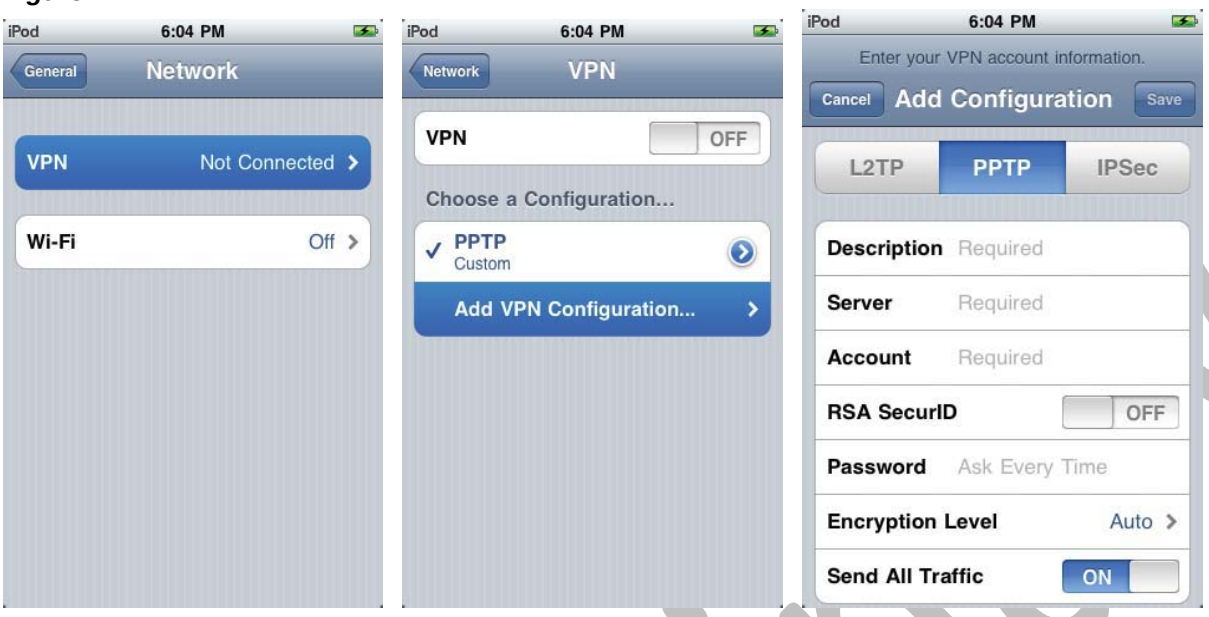
1. Open the **Settings** App.
2. Tap **General**.
3. Tap **Network**.

Figure 20

4. Tap "**VPN**".
5. Tap "**Add VPN Configuration**".
6. Select the "**PPTP"** tab.

Apple, iOS, iPhone, and iPod Touch are trademarks of Apple Inc., registered in the United States and other countries.

Figure 21



7. Enter the appropriate information, based on how you configured the VPN router.
   a. **Description** is a user-friendly, arbitrary name given to the VPN connection.
   b. **Server** will be the IP address or Dynamic DNS name to access the router from the Internet.
   c. **Account** is the user name set up for the PPTP server on the VPN router
   d. **RSA SecurID** should remain set to **OFF**.
   e. **Password** is the password set up for the account/user name used to access VPN router (created in "Configuring the Router", step 3.c.iii.).
   f. **Encryption Level** should remain set to **Auto**.
   g. **Send All Traffic** should remain set to **ON**.
8. **Save** the **VPN configuration**.
9. Slide the "VPN" switch to the ON position (this establishes the connection with the VPN, if available). Once connected, there will be an icon at the top of the screen indicating the VPN session is active.

Preliminary

Figure 22

Preliminary

10. Launch the **Lutron® Application**. Please note that Lutron® Home App for iOS® will ONLY work with RadioRA® 2, whereas the Lutron® Home+ App for iOS® will work with HomeWorks® Illumination™, RadioRA® 2, or HomeWorks® QS.

Figure 23

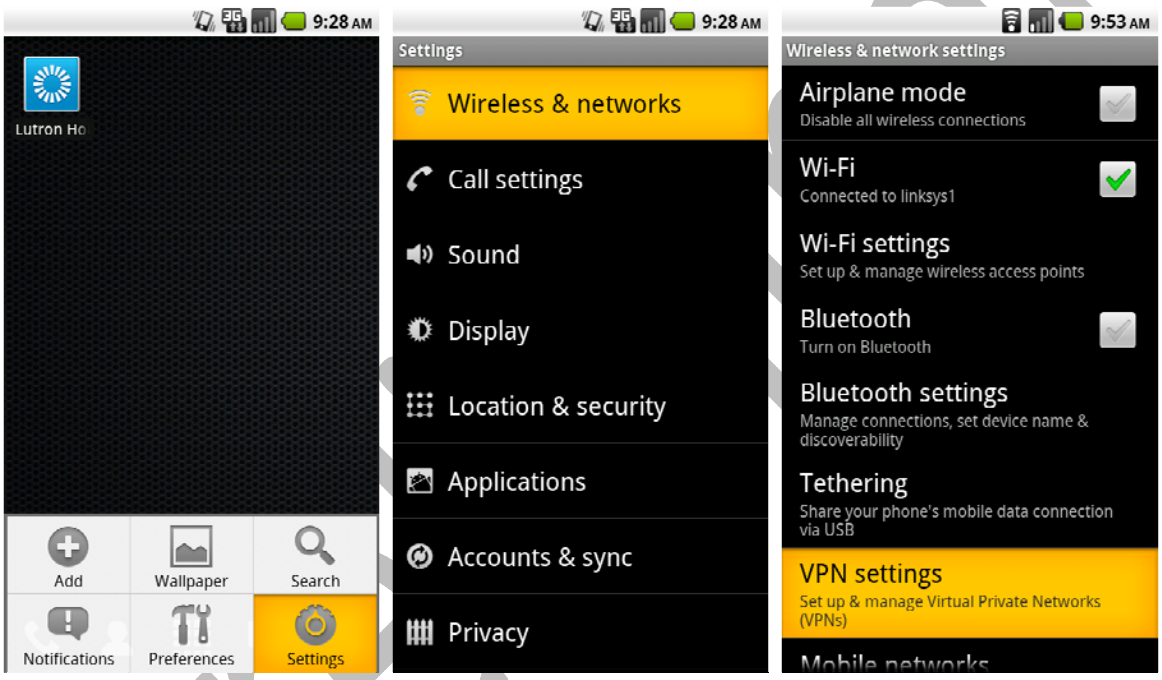
Preliminary

Instructions for Android® devices

NOTE: Visual elements across devices using Android® OS can vary. Your device's screen output may differ in appearance from the screenshots below.

1. From the **Home** screen, press the **Menu** button on the device. Tap **Settings**.
2. Tap **Wireless & networks**.
3. Tap **VPN settings**.
   a. NOTE: Some devices may prompt the user to select between "Basic VPN" and "Advanced IPSec VPN". Select **Basic VPN**.

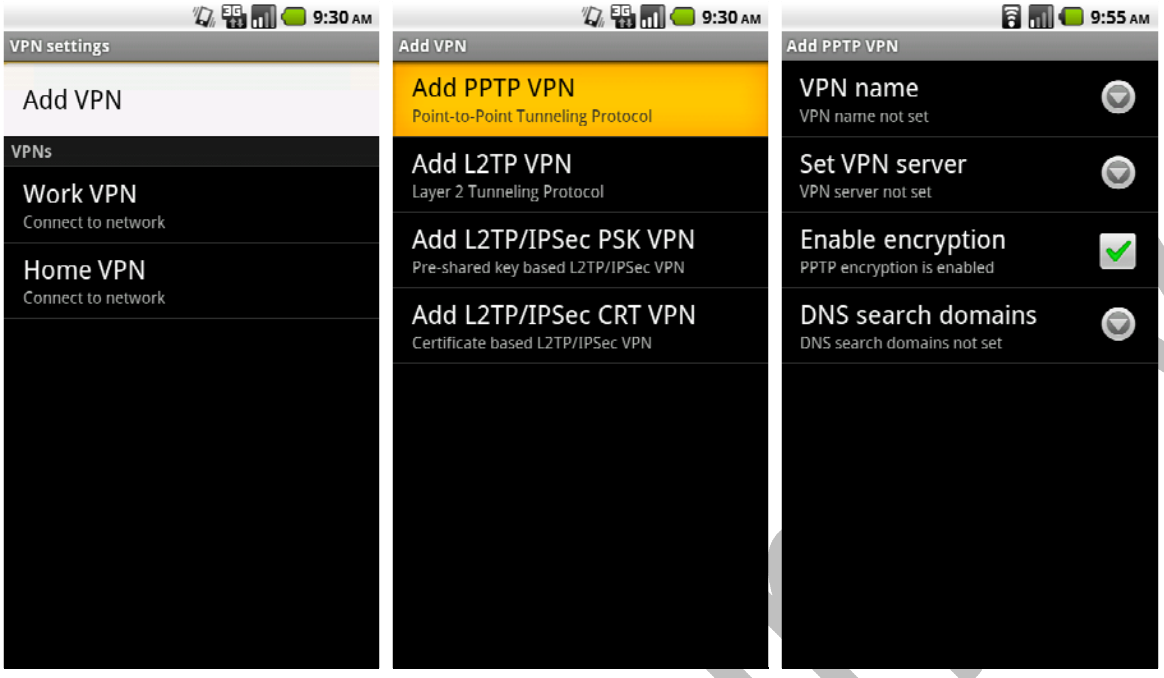
Figure 24



4. Tap **Add VPN**.
5. Tap **Add PPTP VPN**.
6. Enter the appropriate information, based on how you configured the VPN router.
   a. Description is a user-friendly, arbitrary name given to the VPN connection.
   b. **Set VPN server** should be set as the IP address or Dynamic DNS name to access the router from the Internet.
   c. Ensure "**Enable encryption**" is checked**.**
   d. **DNS search domains** do not need to be set.

Preliminary

Figure 25



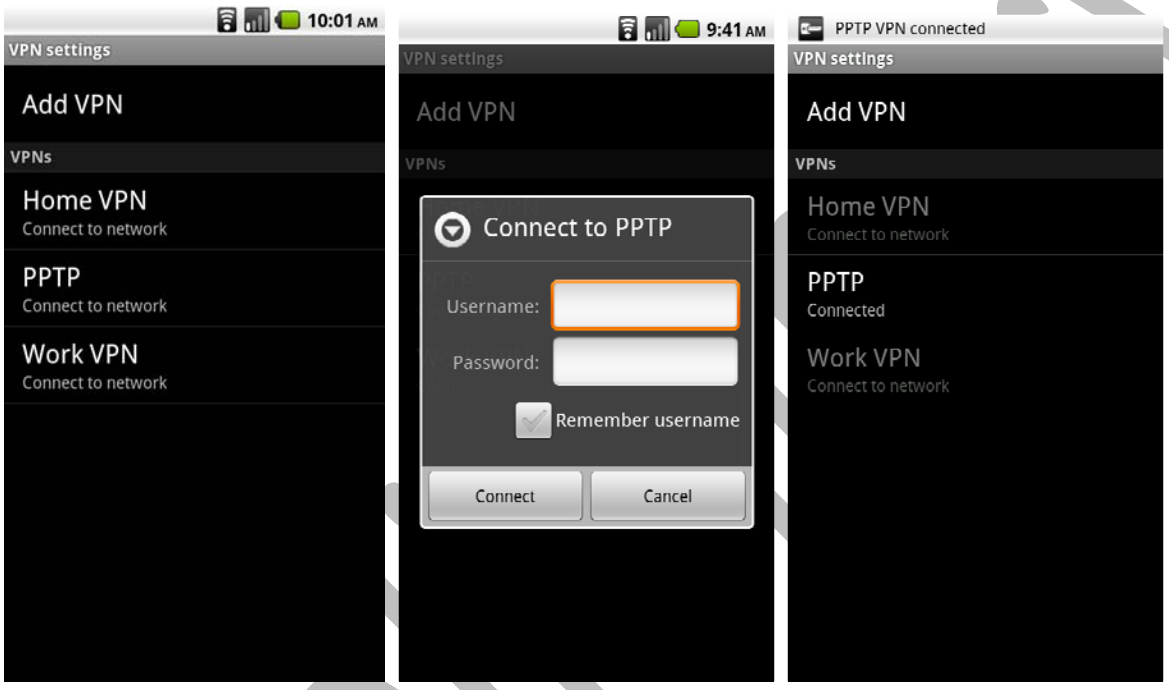
Preliminary

7. Press the **Back** button on the device. **Tap** the new VPN connection.

8. **Username** and **Password** should be set as the user name and password set up for the PPTP server on the VPN router (created in "Configuring the Router", step 3.c.iii.).

9. Check **Remember username** if desired. Tap **Connect**. If a connection is successful, a message will appear in the notification area indicating connection status.

Figure 26

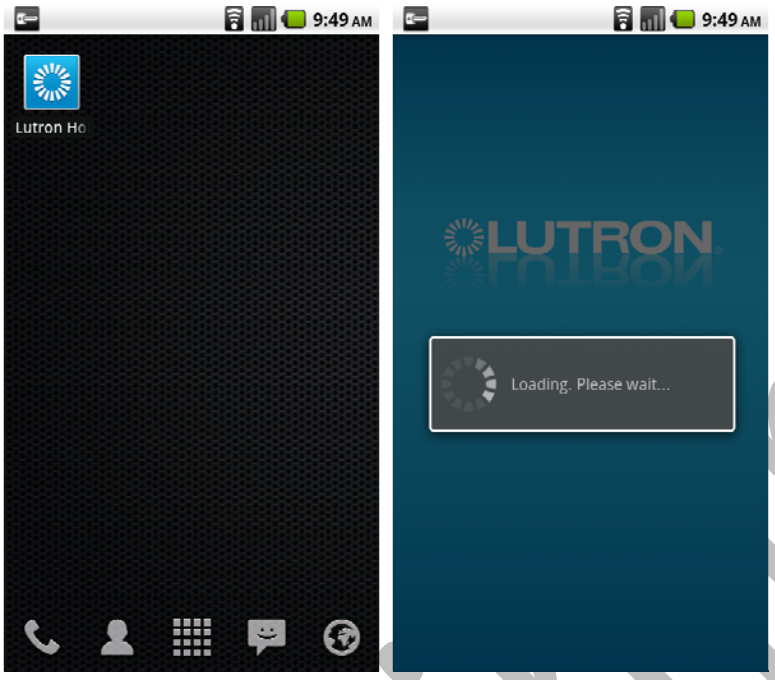


10. Press the **Home** button on the device.

Preliminary

11. Launch the **Lutron® Application**. Please note that Lutron® Home Control+ for Android® will ONLY work with RadioRA® 2 or HomeWorks® QS.

Figure 27



Preliminary

Using a VPN Connection to Remotely Access Lutron® Systems

Once you have the VPN router configured and a VPN client connection setup within Microsoft Windows®, you can use the VPN along with the HomeWorks® QS, HomeWorks® Illumination™, and RadioRA® 2 Inclusive software to connect to the client's system remotely. The software will work just as if you were plugged into the processor through the network at the client's site.

1. **HomeWorks® QS**
   a. Connect to the client VPN by using the connection that you set up in the previous steps. Enter your username and password when you are prompted for them.
   b. Once you are connected to the VPN, launch the HomeWorks® QS software.
   c. Within the **activate** tab, **activate processors** task in the loaded project file, select a Processor.
   d. Check to enable the **Use VPN or Remote Access** option.
   e. Input that Processor's **static IP address** (set in section "Configuring the Router", step 4.a.ii.2.a.ii) into the **Address** field.
   f. Ensure that the port matches the HomeWorks® QS processor settings. In most situations, this will be set to **Port 51023**.
   g. Press the **Save & Apply** button and use the software like you normally would if you were at the client's site.
2. **HomeWorks® Illumination™**
   a. Connect to the client VPN by using the connection that you set up in the previous steps. Enter your username and password when you are prompted for them.
   b. Once you are connected to the VPN, launch the HomeWorks® Illumination™ software and use it like you normally would if you were at the client's site.
3. **RadioRA® 2 Inclusive** (requires version 5.0.1 or later)
   a. Connect to the client VPN by using the connection that you set up in the previous steps. Enter your username and password when you are prompted for them.
   b. Once you are connected to the VPN, launch the RadioRA® 2 Inclusive software.
   c. In the **Design** tab, select the **room** that has the Main Repeater, and press the Find Main Repeater button.
   d. In the **Find Main Repeater** screen, ensure the Main Repeater's **static IP address** (set in section "Configuring the Router", step 4.c.i.3) is accurate.
   e. Ensure that the port matches the RadioRA® 2 Main Repeater settings. In most situations, this will be set to **Port 51023**.
   f. Press the **Save Settings** button and use the software like you normally would if you were at the client's site.

Preliminary